

THE BIRDS OF GOA¹

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(With one text-figure)

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This annotated checklist is the result of 13 years of intensive field study, including 1300 field trips, starting from 1980. The avifauna of Goa has been studied in terms of populations, number of sightings, migratory and breeding records if present. These have been compared with the records of previous decades, starting in 1972. The differences in the observations over these two decades have been discussed, to provide an overview of the avifauna of Goa.

INTRODUCTION

Little work has been done on Goa's avifauna. The Portuguese who ruled the tiny territory on India's West Coast from 1510 to 1961 were, unlike their British counterparts, less interested in birds as objects of scientific study than in their nutritious and culinary properties! This attitude seems to have rubbed off on their colonial subjects of 451 years, and is still prevalent.

In 1972, however, the Government of the erstwhile Union Territory of Goa, Daman and Diu commissioned the Bombay Natural History Society to conduct an ornithological survey. This led to a 16-day field trip by Dr. Sálím Ali and R.B. Grubh at the end of 1972. Work was almost entirely restricted to the belt of dense evergreen and moist deciduous forests along the Western Ghats, and consisted mainly of collecting specimens, resulting in the publication of a systematic list comprising 154 species (Grubh and Ali 1975). Ulhas Rane visited the same area thrice, for a couple of weeks altogether, in 1981-82 and added a further 33 species to this list (Rane 1982).

This annotated checklist is the result of 13 years of fairly intensive field studies and about

1300 field trips of both short and extended duration, commencing in 1980. The author, admittedly an amateur ornithologist, found his occupation an extremely lonely one, having never come across a birdwatcher of either Indian or foreign provenance over a span of nine years. However, with the advent of low-priced direct charter flights from Europe to Goa in the late eighties there is a rapidly growing number of mostly British birdwatchers visiting, usually for two or three weeks only. They are of the fast moving and competitive 'life list' type, generally well informed about India's avifauna, extremely keen and sharp-sighted. In their desire to notch up as many 'new' species as possible, in the very short time available, they frequently get carried away and tend to make blatant misidentifications which are then mirrored in the photocopied leaflets about their exploits that they publish, circulate, and sell among birdwatchers in Britain.

It was only recently when Gordon Frost, a knowledgeable, scrupulous field worker, settled in Goa that I was able to join forces with a fellow birdwatcher.

GEOGRAPHICAL OUTLINE

Goa is a narrow strip of land 3,701 sq.km in area, 105 km long and up to 65 km wide. It is flanked by the Arabian Sea to the West and the Western Ghats (or Sahyadris) to the East. It lies between 15°48'00" N and 14° 53'54" N lat. and between 74°20'13" E and 73° 40'33" E long.

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Physical features and vegetation types

For an ornithological survey, Goa is most conveniently split into three main physical divisions, i.e., the coastal belt, the midland region and the Western Ghats.

1. The coastal belt: Goa's 133 km long coastline is characteristic of South Konkan, with its sandy bays, beaches and rocky headlands broken by the wide estuaries of the Mandovi and Zuari rivers and interspersed with minor estuaries. Behind the coast stretches a patchwork quilt of paddy fields, well-wooded villages, groves of coconut palms and evergreen leafy trees, creeks, salt pans, saline and freshwater marshes. Along the larger rivers, this coastal habitat extends into the interior as far as tidal influence reaches (over 40 km), forming inland bays of brackish and saline marshes. Over 2,000 ha of mangroves line Goa's creeks and estuaries.

2. The midland region: Central Goa consists by and large of lateritic plateaus 30-200 m high, with their outlying detached elements abutting in several places as headlands into the sea. They are covered with stunted cashew trees, thorny scrub and coarse grass, while the scarp-faces, especially the hollows and gullies, support patches and strands of remnant semi-evergreen forest. Numerous perennial springs feed intensive cultivation of areca, coconut, spice, fruit and paddy in the often terraced valleys. A good part of this region is indelibly scarred and irreversibly degraded by large scale open cast and strip mining of iron and manganese ore.

3. The Western Ghats: The Sahyadris in Goa extend in a 125 km long arc, with a crestline constituting the eastern border with Karnataka. About 600 sq. km in area, they have an average elevation of 800 m above msl, several hundred metres lower than the adjoining sections, thereby creating the 'Goa gap'. The northern part is of the Deccan trap type with horizontally layered vertical cliff-faces reminiscent of South Maharashtra hill-stations like Amboli, while the southern and larger part consists of the

rounded and densely wooded hills characteristic of the northern Uttara Kanara Ghats. Tropical wet evergreen forest occurs in strands and patches in the deeper valleys over about 200 sq.km. Tropical moist deciduous forests account for approx. 400 sq.km.

CLIMATE

The maritime, monsoon type climate of Goa is equable and moist or humid throughout the year. Except for the monsoon season, it is temperate, with little demarcation between the cold and hot weather periods.

Annual rainfall is 250-320 cm along the coast and 510-760 cm on the higher slopes of the Ghats. Over 90% of precipitation occurs during the SW monsoon from June to September.

Seasonal variation in temperature is slight: May, the hottest month, has a mean daily temperature of *ca.* 30° C, January, the coolest, *ca.* 25° C. Due to the proximity of the sea, the diurnal range of temperature is not large (4-6° C during monsoon and 10-12° C in January-February).

Relative humidity is high, even during the dry season it is generally above 60%.

CONSERVATION

Since Goa's liberation from colonial rule in 1961, several measures were taken by the government to protect wildlife, with varying results. During the decade after liberation, the most effective means of protection has proved to be the politically motivated unavailability of ammunition for the large number of firearms left by the Portuguese in the hands of the landed and affluent class.

In 1967, a 240 sq.km area of prime wet evergreen, semi-evergreen and moist deciduous forest on and below the slope of the Western Ghats was notified as the Bhagwan Mahaveer Wildlife Sanctuary (BMWS). This includes the Mollem, Collem and Dudhsagar areas largely covered by the previous ornithological

investigations. This sanctuary is still unspoiled, but is being increasingly opened up to government sponsored tourism which will ensure its degradation. Mammalian wildlife has recovered to an amazing degree from near non-existence at the end of the colonial era and since Grubb and Ali (1975) commented on its sorry state in the early seventies.

The Bondla Wildlife Sanctuary, a small area of 8 sq.km in a cluster of outlying hills, is an obvious misnomer. Detached from the main body of the Western Ghats, it features an abysmally ill-kept zoo, a botanical garden and an attached government-run tourist resort, making it one of Goa's favourite picnic spots but hardly a wildlife sanctuary. Though surrounded by extensive open cast iron mines, the moist deciduous forests beyond the sanctuary limits harbour a surprisingly rich birdlife typical of the middle section of the Western Ghats.

The Cotigao Wildlife Sanctuary at Goa's southern border to the Uttar Kanara district of Karnataka is 105 sq.km in size and consists of mainly riverine semi-evergreen and moist deciduous forests, interspersed with large tracts under rubber, eucalyptus and teak plantations and a sprinkling of hamlets whose mostly tribal population is not yet weaned away from its traditional slash-and-burn method of cultivation. Poaching and large-scale illegal tree felling are rampant.

The western end of Chorao (Tiswadi), an alluvial island in the inland estuary of the Mandovi river, was only recently notified as the Dr. Sálím Ali Bird Sanctuary. Its 1.8 sq. km consist of the last sizeable mangrove forest in Goa's coastal belt, and is therefore worth protecting, but it contains no avian life worth mentioning.

On the other hand there is Carambolim lake, a freshwater village tank of 0.7 sq. km, situated close to the World Heritage site of Old Goa. Throughout the year, it sustains a large and varied population of resident waterfowl and in winter an immense number of migratory ducks,

well over 35,000 in normal years and over 75,000 in the winter of 1987-88, when large parts of India were affected by drought, while Goa had the benefit of an adequate monsoon. The Carambolim lake has been shown by way of the Asian mid-winter waterfowl count (Daniel 1988) to be the major wintering quarter of migratory ducks in peninsular India, and one of the most important in the Subcontinent. Under the Ramsar Convention, which India signed in 1982, this village tank would qualify for inclusion in the list of about 300 protected wetlands of international importance the world over. Yet, the Goa government deems it unfit even to be declared a bird sanctuary!

The most effective means of protection appears to be private ownership. At Corlim (Tiswadi), close to the Carambolim lake, the Swiss-owned Hindustan Ciba-Geigy Ltd. produces at its Santa Monica plant a range of highly toxic pesticides for agricultural use. The large factory compound contains two shallow ponds that give undisturbed shelter to Goa's only known heronry, and a safe haven to quite a number of migrant and vagrant Ciconiidae and Threskiornithidae. Despite the tight security around the plant, ornithologists are encouraged by the General Manager, himself an amateur birdwatcher, to visit the site.

A Note on the Systematic List

- All observations and records, if not mentioned otherwise, are by the author.
- The number in brackets after the serial number of each species refers to the "Synopsis number" of Ali and Ripley (1995).
- I have followed the sequence used in the SYNOPSIS (Ripley 1982) by inserting the species numbered 429-44 between nos. 361 and 362.
- To facilitate locating places on a detailed map, the name of the taluka (an administrative unit) is added in brackets.
- Quantitative terms used in the text:

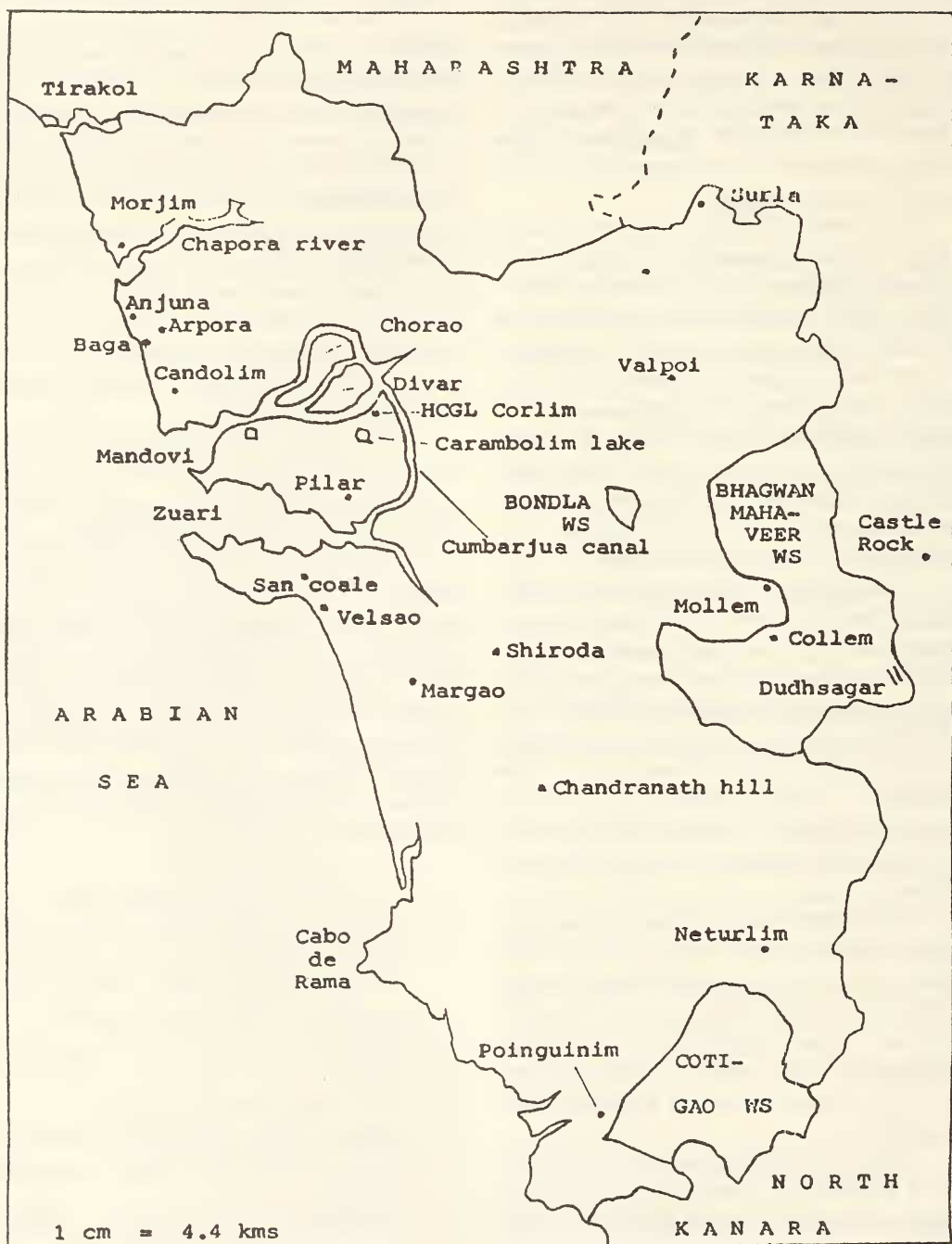


Fig. 1: Map of Goa (with Wildlife Sanctuaries and other places of ornithological interest)

Small	numbers	= < 50
Moderate	"	= 50-200
Considerable	"	= 200-1000
Large	"	= 1000-10000
Very large	"	= > 10000

Abbreviations:

WS: Wildlife Sanctuary
 BMWS: Bhagwan Mahaveer Wildlife Sanctuary
 HCGL: Hindustan Ciba- Geigy Ltd.
 at Corlim (Tiswadi)

SYSTEMATIC LIST OF BIRDS

(Unconfirmed records of birds that are difficult to identify in the field and records within 5 km beyond Goa's borders are appended.)

1. (5) **Little Grebe** *Tachybaptus ruficollis* (Pallas)

Resident in moderate numbers. Thinly spread over the freshwater bodies of the coastal belt, though one specimen was observed in the totally saline estuary of the Tirakol river. Small numbers breed from July to February.

2. (14) **Wilson's Storm Petrel** *Oceanites oceanicus* (Kuhl)

Passage migrant in probably large numbers. Migration along Goa's coast starts in mid-August and peaks in the first week of September, when a sweep with a field-scope rarely shows less than 20 birds foraging and moving southward at a sedate pace (ca. 200-300 m offshore). The last stragglers are seen in early October.

3. (23) **Masked Booby** *Sula dactylatra*
Lesson

Vagrant. Davidson (1898) 'obtained a specimen of this bird at Sadasheogarh on June 23, 1893. It was blown ashore and captured alive.' Sadasheogarh, now renamed Sadasshivgad, is North Kanara's northernmost coastal village, and borders on Goa.

On August 4, 1997, I observed a masked booby ca. 300 m. offshore at Anjuna (Bardez).

4. (25) **Brown Booby** *S. leucogaster* (Boddaert)

Vagrant. In early June 1997, I observed an adult bird coming in and settling just beyond the surf-line off Anjuna Beach, possibly a storm-blown specimen, as the previous day a cyclonic depression had crossed over from the northern Arabian Sea into Saurashtra. This appears to be only the second record from India's West Coast (HANDBOOK 1:34 35).

5. (26) **Cormorant** *Phalacrocorax carbo* (Linn.)

Rare visitor. Ones and twos were observed in the HCGL compound at Corlim (Tiswadi) during June, September, December and January.

6. (27) **Indian Shag** *P. fuscicollis* Stephens

Breeding visitor. Moderate numbers (up to 100 pairs) breed annually in the heronry inside the HCGL compound from mid-July to end of January.

7. (28) **Little Cormorant** *P. niger* (Vieillot)

An increasingly common and considerably numerous resident. In the dry season, the population is evenly spread out over wetlands of the coastal region (occasionally up to the base of the Western Ghats). With the onset of the SW monsoon, these birds congregate at a pond inside the HCGL compound, where about 200 pairs breed between late June and early December.

8. (29) **Darter** *Anhinga rufa* (Daudin)

Apparently a regular breeding visitor. Up to 10 birds arrive by end May at the HCGL heronry and breed there from end June to early November. Usually by mid-December all birds have left.

9. (36) **Grey Heron** *Ardea cinerea* Linn.

Moderately common non-breeding resident, found throughout the coastal belt. During the SW monsoon, the few birds that have not evaded the rains gather at the fringes of the heronry at Corlim (Tiswadi).

10. (37) **Purple Heron** *A. purpurea* Linn.

Rather uncommon and moderately numerous resident of the coastal belt and river basins as far as tidal influence reaches. Up to 35 pairs breed regularly in the HCGL heronry

between mid-May and early October.

11. (38) **Little Green Heron** *Ardeola striatus* (Linn.)

Common and considerably numerous resident of the coastal strip, from offshore islands and rocky sea-shore ascending the tidal rivers and creeks up to 15 km inland. Also found at salt pans and rock-strewn freshwater streams. Fledglings were seen in May.

12. (42) **Pond Heron** *A. grayii* (Sykes)

Resident and local migrant. One of the most common and numerous birds of Goa, less so during monsoon. Found from offshore islands to streams in dense evergreen forest along the Western Ghats strip. Uncommon breeder during the SW monsoon.

13. (44) **Cattle Egret** *Bubulcus ibis* (Linn.)

A common and numerous dry season visitor ranging from the coastal belt to the foot of the Ghats. Up to 2,000 birds may congregate at the Carambolim tank in April before moving out in the first week of June to evade the rains. They return towards mid-September when the worst of the monsoon is over.

14. (46) **Large Egret** *Ardea alba* Linn.

Fairly uncommon resident in moderate numbers. Confined to the coastal belt where up to 50 individuals may be encountered in a single marsh. About the same numbers breed between late April and mid-September at the heronry in the HCGL compound.

15. (47) **Smaller Egret** *Egretta intermedia* (Wagler)

A common and moderately numerous local migrant. Restricted to the coastal belt and river basins. Most birds absent themselves during the SW monsoon, from mid-June to mid-September, presumably moving up into the Deccan.

16. (49) **Little Egret** *E. garzetta* (Linn.)

Common and very numerous dry season visitor, from just behind the sea-shore to the base of the Western Ghats. These egrets leave by mid-June and return towards mid-September with only a few individuals staying on during the rains.

17. (50) **Indian Reef Heron** *E. gularis* (Bosc)

A dry season visitor, commonly occurs in moderate numbers, along the sea-shore and inland estuaries of the larger rivers, where over a hundred may congregate on tidal mudflats. The reef heron's pre-monsoon withdrawal lasts from mid-April till the first week of June when all the birds have disappeared, only to return from mid-September onwards. Although Dharmakumar-sinhji and Lavkumar (1956) reported an enigmatic 'heronry of reef herons right in the centre of the Oyster Rock off Karwar' just a dozen km south of Goa, there is no indication of their breeding anywhere in Goa.

18. (52) **Night Heron** *Nycticorax nycticorax* (Linn.)

Uncommon winter visitor in small numbers. There are just a dozen or so records, ranging from the end of October to mid-March, all from the coastal belt and river basins. Hume (1876) mentioned to have seen a 'colony' of night herons on St. George's Island off Bogmalo Beach (Marmagoa) but does not say if they were breeding. However, there was certainly no breeding colony in Goa for the last 17 years.

19. (53) **Malay Bittern** *Gorsachius melanolophus* (Raffles)

I observed a single Malay bittern in semi-evergreen forest at the foot of the Anmod Ghat, in the BMWS, in July 1985, at the height of the SW monsoon. Davidson (1898) reported to 'have seen the bird at ...Anshi..., all in May, and at many places round Karwar in the rains'. Both locations are only a dozen km to the south of Goa.

20. (56) **Chestnut Bittern** *Ixobrychus cinnamomeus* (Gmelin)

A fairly common and moderately numerous monsoon visitor that is found in paddy fields, at ponds and mangrove-lined creeks, from just behind the sea-shore to the base of the Ghats. This bittern makes its appearance towards the end of June and winds up its season by mid-October, unseasonal records being few.

21. (57) **Yellow Bittern *I. sinensis* (Gmelin)**

Status unclear. There were a number of sightings of two adults and an immature bird at a patch of sea-holly in a saline marsh along the Baga (Bardez) creek, between December 1995 and May 1996.

22. (60) **Painted Stork *Mycteria leucocephala* (Pennant)**

Stray. Throughout March 1997, up to 4 birds were seen in marshes at Shiroda (Ponda) and at their night-roost in the HCGL compound at Corlim (Tiswadi).

23. (61) **Openbill Stork *Anastomus oscitans* (Boddaert)**

An uncommon and rather irregular dry season visitor to the coastal belt and river basins; up to 60 birds were counted in a single marsh. In recent years, appearances and even overwintering seem to be more frequent.

24. (62) **White-necked Stork *Ciconia episcopus* (Boddaert)**

Uncommon, but regular dry season visitor in moderate numbers. Met with at creeks and marshes of the coastal region, where up to 55 individuals may congregate. Occasionally seen soaring along or above the crest of the Sahyadris. Their habitual night-roost is at the HCGL compound. Not yet recorded between early June and mid-October.

25. (63) **White Stork *C. ciconia* (Linn.)**

Vagrant. A single adult was observed soaring above the Dudhsagar waterfalls, in the BMWs, and resting in the HCGL compound at Corlim (Tiswadi), in February 1998.

26. (65) **Black Stork *C. nigra* (Linn.)**

Vagrant. An adult and an immature specimen were recorded in January 1998 at the ponds in the HCGL compound.

27. (68) **Lesser Adjutant *Leptoptilos javanicus* (Horsfield)**

Small numbers (up to 18 in a group) of this rather scarce visitor are found regularly at wetlands situated between the Zuari and Mandovi rivers, the focal point being the HCGL heronry. One bird was seen circling low over secondary

forest at the base of the Western Ghats. Not yet recorded during June-July.

28. (69) **White Ibis *Threskiornis aethiopica* (Latham)**

Rather rare visitor in very small numbers. Liable to turn up at any season, on freshwater bodies throughout the coastal belt and river basins.

29. (71) **Glossy Ibis *Plegadis falcinellus* (Linn.)**

Scarce winter visitor in moderate numbers. Since 1988, this species appears irregularly in singles and groups of up to 72 individuals at riverine freshwater marshes of the coastal region.

30. (72) **Spoonbill *Platalea leucorodia* (Linn.)**

Straggler. There are 8 records of up to 19 birds from the Carambolim lake and the ponds in the HCGL compound, all during March, May and June.

31. (88) **Lesser Whistling Teal *Dendrocygna javanica* (Horsfield)**

A resident in small numbers, and a dry season visitor in considerable numbers. Found at wetlands of the coastal belt and river basins, and occasionally seen travelling over the open sea along the coastline. Gatherings of up to 800 birds are not uncommon at the Carambolim lake; the highest number, 1300+ ducks, was recorded at the HCGL ponds in March. These birds are absent from the end of April till late August, though a dozen or so hang on throughout the monsoon, now and then. Breeding is rare, seen in August-September.

32. (90) **Ruddy Shelduck *Tadorna ferruginea* (Pallas)**

I have had only three sightings of up to 20 birds, from different wetlands in the river basins, in November-December.

33. (93) **Pintail *Anas acuta* Linn.**

A regular winter visitor in very large numbers, occurs sporadically in wetlands of the river basins, mainly at the Carambolim lake and on mudflats in the nearby inland-estuary of Mandovi, with maximum numbers (Jan.-Feb.)

averaging close to 35,000 over a period of 6 years. More than 70,000 birds were estimated to be present for a couple of weeks in January 1988, the largest single number recorded in the area covered by the annual Asian Mid-winter Waterfowl Count for this year (Daniel 1988). Apparently, the drought conditions prevailing in northern India had forced the birds further south into the peninsula, where wetlands were filled by a more than sufficient monsoon.

The majority of pintails arrive in the first week of October and leave by late March, with one or two drakes lingering on right into the rains.

34. (94) **Common Teal** *A. crecca* Linn.

Uncommon winter visitor in small numbers. Found at wetlands of the coastal region from the end of October till early April, in flocks ranging up to 200 (at the Carambolim lake).

35. (97) **Spotbill Duck** *A. poecilorhyncha* J.R. Forster

A very rare winter visitor to the Carambolim lake and the nearby inland-estuary of Mandovi, in January and March. There are only 5 records from 4 years. The maximum number, 12 birds, was seen by Willoughby (1996) in March.

36. (100) **Mallard** *A. platyrhynchos* Linn.

Very rare winter visitor to the Carambolim lake and mudflats in the Mandovi river. I have 4 records in 3 years of up to 15 birds from Nov. to Feb.

37. (101) **Gadwall** *A. strepera* Linn.

A rare winter visitor to the inland estuary of the Mandovi and Carambolim lake. There were 6 sightings of up to 7 birds, between October and March.

38. (103) **Wigeon** *A. penelope* Linn.

Very rare winter visitor to the Carambolim lake and mudflats in the Mandovi. The existing 5 records are of single birds, between October and March.

39. (104) **Garganey** *A. querquedula* Linn.

A dry season visitor in large numbers. It might turn up at any saline, brackish or

freshwater wetland throughout the coastal region, and occasionally even over the open sea. Well over 4,000 birds winter regularly at the Carambolim lake (maximum 8,000+ in January 1991). These ducks start arriving by the end of September and depart towards the end of April, with a few staying on right into July.

40. (105) **Shoveller** *A. clypeata* Linn.

A regular winter visitor to freshwater bodies of the coastal belt and to estuaries. A maximum number of 11 birds was recorded at the Carambolim lake. Present from late September till early May.

41. (108) **Common Pochard** *Aythya ferina* (Linn.)

Very rare winter visitor. I have three records of up to 6 birds from Carambolim lake and the tidal mudflats of the Mandovi river, in October, November and January.

42. (109) **Ferruginous Duck** *A. nyroca* (Güldenstädt)

A scarce winter visitor, the 7 existing records are of a single bird in the fully saline mouth of the Chapora river, in November, and of up to three birds at the Carambolim lake, in December-January.

43. (111) **Tufted Duck** *A. fuligula* (Linn.)

Vagrant. I saw two drakes on the tidal mudflats in the inland estuary of the Mandovi river, in November 1987.

44. (114) **Cotton Teal** *Nettapus coromandelianus* (Gmelin)

Common, dry season visitor to wetlands throughout the coastal and midland regions. The largest gatherings, often more than 400, occasionally up to 800 birds, are found at the Carambolim lake. Generally absent from early May till mid-November, though a few regularly stay on during the rains.

45. (115) **Comb Duck** *Sarkidiornis melanotos* (Pennant)

A regular winter visitor from mid-November to early April, with one or two birds lingering on till the end of May. Found only at the Carambolim lake and the ponds in the HCGL

compound at Corlim (Tiswadi), where up to 80 birds may congregate.

46. (124) **Black-winged Kite** *Elanus caeruleus* (Desfontaines)

Uncommon dry season visitor in small numbers. Occurs from the coastal plain to the foot of the Western Ghats, between the end of October and early June.

47. (127) **Black-crested Baza** *Aviceda leuphotes* (Dumont)

Status unclear. I have two records (March 1987 and 1989) from the same ridge in dense, wet, evergreen forest, in the BMWS, at an altitude of ca. 500 m.

48. (130) **Honey Buzzard** *Pernis ptilorhyncus* (Temminck)

A fairly common dry season breeding visitor that takes evasive action during the monsoon, absenting itself from the end of May till mid-October. Moderate but slowly declining numbers (rapidly in the coastal belt) of this raptor are almost evenly spread out over the whole state. Breeding was recorded throughout the dry season.

49. (133) **Pariah Kite** *Milvus migrans* (Boddaert)

A very common (almost) resident in considerable numbers. Found throughout the coastal belt and, to a lesser degree, in the midland region. This raptor is the most typical monsoon fugitive and the most accurate indicator of the imminent rains. It leaves a week ahead of the advancing monsoon in a steady stream, at times over 50 birds within 10 minutes, moving northwards along the coast. The return movement in early September is less dramatic.

50. (135) **Brahminy Kite** *Haliastur indus* (Boddaert)

A very common resident of the coastal region, where congregations of up to 300 birds may occur at suitable wetlands. It moves up along the larger rivers as far as tidal influence reaches. Numbers decline sharply during monsoon. Breeding was recorded in April and August.

51. (139) **Shikra** *Accipiter badius* (Gmelin)

A fairly common, moderately numerous resident from the seashore to the base of the Western Ghats. Breeding in April and July. Numbers are declining steadily since the mid-eighties.

52. (144) **Crested Goshawk** *A. trivirgatus* (Temminck)

Rare resident(?). Grubh and Ali (1975) sighted this raptor in the BMWS during Nov.-Dec. 1972. Saha and Dasgupta collected a specimen in the Bondla WS in October 1977. I have recorded a single bird in the Cotigao WS in October 1987, and a pair each in May 1996 and 1997, both in display flight near the Dudhsagar waterfalls in the BMWS.

53. (147) **Sparrow-Hawk** *A. nisus* (Linn.)

A rare winter visitor. There are 5 records of single birds from the BMWS, in October, January and February.

54. (151) **Besra Sparrow-Hawk** *A. virgatus* (Temminck)

First noted by Rane (1982) sometime between April and June 1982, in the BMWS. I saw three birds at different localities of the same WS on a single day in February 1987 and a single bird in December 1995.

55. (153) **Long-legged Buzzard** *Buteo rufinus* (Cretzschmar)

Stray. Throughout January and February 1997, one bird frequented pasture land at the coastal village of Candolim (Bardez).

56. (157) **White-eyed Buzzard-Eagle** *Butastur teesa* (Franklin)

Saha and Dasgupta (1992) reportedly saw this raptor near Margao (Salcete) and Valpoi (Sattari) in December 1968 and January 1969, respectively. Specimens were collected by Grubh and Ali (1975) in the BMWS and others were noted at Mayem (Bicholim) and Canacona, in Nov.-Dec. 1972.

I have identified this bird with certainty only once, on Chorao Island (Tiswadi), in February 1985.

57. (161) **Crested Hawk-Eagle *Spizaetus cirrhatus* (Gmelin)**

An uncommon resident, in small numbers, of the Western Ghats section and patches of remnant evergreen and semi-evergreen forest on the scarp of plateaus facing the coastal strip. Breeding was noted in February, March and August.

58. (163) **Bonelli's Eagle *Hieraaetus fasciatus* (Vieillot)**

Straggler. I have three sightings of single birds from the coastal lowlands, during the months of January-March.

59. (164) **Booted Hawk-Eagle *H. pennatus* (Gmelin)**

A common winter visitor in small numbers. Found between early October and mid-April, mainly in the coastal belt, rarely at the base of the Ghats.

60. (165) **Rufous-bellied Hawk-Eagle *H. kienerii* (E. Geoffroy)**

Very rare resident. Single birds were recorded in all seasons at the top of the Dudhsagar waterfalls, in the BMWS.

61. (170) **Greater Spotted Eagle *Aquila clanga* Pallas**

Scarce winter visitor in very small numbers to larger wetlands in the coastal region, from end October to late March.

62. (172) **Black Eagle *Ictinaetus malayensis* (Temminck)**

Uncommon, but regular dry season visitor, in small numbers, from the first week of November to mid-May. Found mainly in the Western Ghats and their outlying hills, rarely in the coastal belt.

63. (173) **White-bellied Sea-Eagle *Haliaeetus leucogaster* (Gmelin)**

A fairly common resident along the sea-coast. The breeding population along Goa's 133 km long coastline consists of at least 16 pairs; breeding season appears to be September to January.

These beautiful eagles are still a fairly common sight at the state capital Panaji, where

they used to breed occasionally at Malim (Bardez), just across the Mandovi river. Some venture up to 15 km inland along the larger tidal rivers and even ascend non-tidal rivers into dense semi-evergreen forest (Cotigao WS).

64. (175) **Grey-headed Fishing Eagle *Ichthyophaga ichthyaetus* (Horsfield)**

Vagrant. A single sub-adult was observed at a freshwater reservoir on top of a barren lateritic plateau near Sancoale (Marmagoa), in November 1987.

65. (185) **Indian White-backed Vulture *Gyps bengalensis* (Gmelin)**

A not frequently seen resident. The not very local population of approx. 45 birds may turn up anywhere, from a seaside village to the crest of the Western Ghats. A sharp decline in numbers has been noticed since 1995.

66. (186) **Egyptian Vulture *Neophron percnopterus* (Linn.)**

Stray. A single was observed soaring above the Dudhsagar waterfalls in the BMWS, in January 1997.

67. (190) **Pale Harrier *Circus macrourus* (S.G. Gmelin)**

Rather scarce, irregular winter visitor (in ones and twos). Recorded in the coastal plains and on isolated coastal plateaus from mid-October to early March.

68. (191) **Montagu's Harrier *C. pygargus* (Linn.)**

Rare and irregular winter visitor. There are only 5 records (of singles and a pair) in eleven years, all from the coastal lowlands, between December and February.

69. (192) **Pied Harrier *C. melanoleucos* (Pennant)**

Vagrant. I had a sighting of the strikingly patterned male on Divar (Tiswadi) island, in the inland-estuary of the Mandovi, in December 1989.

70. (193) **Marsh Harrier *C. aeruginosus* (Linn.)**

A regular and fairly common winter visitor in small numbers. Confined to the coastal belt

and the river basins, it arrives usually by mid-September and leaves around mid-April.

71. (195) **Short-toed Eagle** *Circaetus gallicus* (Gmelin)

Rare and irregular winter visitor, in singles and pairs, to the coastal belt, between December and March.

72. (196) **Crested Serpent Eagle** *Spilornis cheela* (Latham)

A common and moderately numerous resident in all three zones, from pockets of remnant semi-evergreen forest on coastal headlands to the crest of the Sahyadris.

73. (203) **Osprey** *Pandion haliaetus* (Linn.)

Uncommon but regular winter visitor to the coastal strip and up to 15 km inland in the river basins. Small numbers are present from mid-September till the first week of April. Sub-adult birds occasionally brave the rains and stay on during the SW monsoon.

74. (209) **Peregrine Falcon** *Falco peregrinus* Tunstall

Small numbers of this uncommon winter visitor are found throughout the coastal strip, from mid-October to the end of March. Grubh and Ali (1975) had noted the nominate race at the BMWS, in November-December 1972.

75. (222) **Kestrel** *F. tinnunculus* (Linn.)

An uncommon but regular winter visitor. Small numbers occur between early October and late March at coastal plateaus and lowlands, exceptionally also at the foot of the Ghats.

76. (250) **Grey Quail** *Coturnix coturnix* (Linn.)

A scarce winter visitor in very small numbers, recorded during Jan.-Feb. in the coastal belt and at the base of the Sahyadris. Noted by Grubh and Ali (1975) at Valpoi (Sattari), in November-December.

77. (252) **Black-breasted Quail** *C. coromandelica* (Gmelin)

Monsoon visitor in small numbers, found on pasture land and neglected rice paddies on the alluvial islands in the inland-estuary of the Mandovi and on grassy lateritic plateaus

bordering the coastal belt, from end-June to mid-November.

78. (255) **Jungle Bush Quail** *Perdicula asiatica* (Latham)

An uncommon and moderately numerous resident of lateritic plateaus, even coastal ones. There are indications of their breeding in June-July.

79. (275) **Red Spurfowl** *Galloperdix spadicea* (Gmelin)

Fairly common resident, in considerable numbers, of plateaus (coastal and midland) up to the foot of the Ghats. Breeding was recorded in August-September.

80. (301) **Grey Junglefowl** *Gallus sonneratii* Temminck

A fairly common, considerably numerous resident of the Western Ghats strip and its outlying hills. An unusually large population seems to reside outside (!) the boundaries of the Bondla WS.

81. (311) **Common Peafowl** *Pavo cristatus* Linn.

Fairly common resident, in considerable numbers, of the plateau region. The population appears to be increasing steadily, even advancing to the coast by way of several headlands. Breeding noted in August.

82. (318) **Common Bustard-Quail** *Turnix suscitator* (Gmelin)

A rather scarce resident in unknown numbers. I have come across this bird in 4 localities on the scarp of plateaus and at the base of the Western Ghats. Grubh and Ali (1975) had noted it in 'various localities' in 1972.

83. (229) **Blue-breasted Banded Rail** *Rallus striatus* Linn.

Uncommon resident of mangrove-fringed tidal creeks. Davidson (1898) had found this rail 'common about Karwar (14 km to the south of Goa) in the rains...'

84. (337) **Baillon's Crake** *Porzana pusilla* (Pallas)

Straggler(?) I caught a specimen of this crake that was traipsing through a coconut-palm

grove just behind the beach, at Anjuna (Bardez), in March 1981. In November 1988, I saw a Baillon's Crake at a little freshwater pond beside the Baga (Bardez) creek.

85. (339) **Ruddy Crake** *P. fusca* (Linn.)

I have a single record of one bird at the Baga (Bardez) creek, in October 1987, where Willoughby (1996) saw it in November 1995.

86. (343) **White-breasted Waterhen** *Amaurornis phoenicurus* (Pennant)

A common and numerous resident of the coastal and midland regions. Breeding was noted from June to October.

87. (346) **Watercock** *Gallicrex cinerea* (Gmelin)

Stray (?). There are only two sightings: two birds at the Carambolim lake, in June 1996, and one at the fringes of the Nerul (Bardez) marsh, in November 1996 (G. Frost, N. Manville, pers. comm.)

88. (347) **Moorhen** *Gallinula chloropus* (Linn.)

A common and moderately numerous winter visitor to freshwater bodies in the coastal belt and river basins, from late September till early April. Numerous fledglings that were barely able to fly were observed in late October.

89. (349) **Purple Moorhen** *Porphyrio porphyrio* (Linn.)

A considerably numerous resident with strong seasonal fluctuations at the Carambolim lake, and off and on, a nearby pond at Pilar (Tiswadi). Up to 500 individuals congregate during December and January; numbers dwindle during the hot season to single digits. A few pairs breed irregularly in April, September and January.

90. (350) **Coot** *Fulica atra* Linn.

A common winter visitor to the larger tanks and ponds of the coastal region, from mid-October to the first week of May, with singles occasionally remaining into early June. Assemblies of over 2,000 birds are to be found at the Carambolim lake during December-January.

91. (358) **Pheasant-tailed Jacana** *Hydrophasianus chirurgus* (Scopoli)

A fairly common resident of freshwater wetlands throughout the coastal belt and river basins. Maximum numbers, up to 600 birds, may be seen in January at the Carambolim lake. This jacana shuns the rains and the greater part of the population evades the monsoon from end May to early August. Breeding was noted from September-December.

92. (359) **Bronze-winged Jacana** *Metopidius indicus* (Latham)

A fairly common resident of freshwater ponds and tanks in the river basins. Over the last 8 years the population has increased rapidly, with over 200 birds, in May 1996, at the Carambolim lake alone. Only small numbers stay on during the three months of heavy monsoon rains and equally small numbers breed between August and October.

93. (360) **Oystercatcher** *Haematopus ostralegus* Linn.

Irregular and uncommon winter visitor to the coast, from mid-September to late March; an occasional single may show up during the SW monsoon. The largest group on record consisted of 19 birds. Not recorded since 1989.

94. (429) **Painted Snipe** *Rostratula benghalensis* (Linn.)

Status uncertain. Sightings, at brackish and freshwater marshes of the coastal region, started in 1988 and are becoming more frequent in recent years. This bird is probably a year-round resident, except for the driest part of the dry season. A maximum of 8 specimens were seen in a single locality.

95. (430) **Black-winged Stilt** *Himantopus himantopus* (Linn.)

An uncommon but regular visitor from October-April, occasionally to mid-June, to the coastal belt and river basins; sometimes ventures up to irrigated paddy fields at the foot of the Ghats. A maximum of 47 birds were counted at the Carambolim lake.

96. (434) **Crab Plover** *Dromas ardeola* Paykull

Stray. A single adult specimen was observed on tidal mudflats in the estuary of the Chapora river, in October 1996.

97. (436) **Stone Curlew** *Burhinus oedicephalus* (Linn.)

Stray. I saw one bird on a sparsely wooded grassy lateritic plateau at the coastal village of Arpora (Bardez), in September 1981.

98. (443) **Collared Pratincole** *Glareola pratincola* (Linn.)

Straggler. I have 4 records of up to 14 birds: three from freshwater wetlands in the coastal belt and one from a saline estuary, between late September and the beginning of March.

99. (444) **Small Indian Pratincole** *G. lactea* Temminck

A fairly common but capricious winter visitor, in large numbers, to the coastal belt and river basins, from early November to late April. Several flocks of over 2,000 birds were recorded, often along the high water line of beaches.

100. (365) **Grey-headed Lapwing** *Vanellus cinereus* (Blyth)

Vagrant. A sub-adult bird was sighted at an almost dry tidal marsh beside the Baga (Bardez) creek on three consecutive days in January 1989 (Lainer 1989).

101. (366) **Red-wattled Lapwing** *V. indicus* (Boddaert)

Common, considerably numerous resident, found from the seashore to the foot of the Ghats. Breeds from April to July.

102. (370) **Yellow-wattled Lapwing** *V. malabaricus* (Boddaert)

Rather uncommon, dry season visitor in moderate numbers. Occurs from wasteland behind the beaches to the base of the Western Ghats. It appears to be declining since the early eighties.

103. (371) **Grey Plover** *Pluvialis squatarola* (Linn.)

Uncommon, somewhat irregular winter visitor in moderate numbers to beaches and estuaries, sometimes also on plateaus near water.

There is a pronounced autumn migration between mid-August and late September.

104. (373) **Eastern Golden Plover** *P. dominica* (P.L.S. Muller)

A common, regular winter visitor in moderate numbers, from mid-September to early May. Frequents rocky sea-coast, saline and brackish marshes. Over 180 birds were counted in a single flock.

105. (374) **Large Sand Plover** *Charadrius leschenaultii* Lesson

A common, moderately numerous 'dry season visitor to beaches and tidal mudflats in estuaries, from late August to end May.

106. (378) **Ringed Plover** *C. hiaticula* Linn.

A single adult specimen was found among 15 little ringed plovers on the pebbly shore of the freshwater reservoir on the Sancoale (Marmagoa) plateau, in Nov. 1987.

107. (380) **Little Ringed Plover** *C. dubius* Scopoli

Common and considerably numerous winter visitor, spreading from the coastal strip to the base of the Ghats. This plover arrives in early October and moves out by mid-April, though a few may linger on a month longer.

108. (381) **Kentish Plover** *C. alexandrinus* Linn.

An uncommon, irregular winter visitor to beaches and tidal mudflats. Numbers vary capriciously from a single or a dozen in one year to several hundreds the next. Recorded from early September to mid-March.

109. (384) **Lesser Sand Plover** *C. mongolius* Pallas

A common winter visitor in large though highly fluctuating numbers to the entire seaboard and the estuaries, from mid-Sept. to mid-April. Occasionally singles or small groups stay on during the SW monsoon. Flocks of over 2,000 birds are no rarity during Dec.-Jan.

110. (385) **Whimbrel** *Numenius phaeopus* (Linn.)

A common winter visitor in small numbers to the coast and estuaries, this wader is the

earliest to arrive (usually mid-July) and the first to depart (early March).

111. (388) **Curlew** *N. arquata* (Linn.)

Fairly common winter visitor, in small numbers, to beaches and tidal mudflats in estuaries, from late August to the first week of May.

112. (389) **Black-tailed Godwit** *Limosa limosa* (Linn.)

Sporadic autumn passage migrant. I have 7 records of singletons and a threesome, ranging from late Aug. to mid-Dec., from flooded paddies, salt pans and tidal mudflats in estuaries.

113. (391) **Bar-tailed Godwit** *L. lapponica* (Linn.)

Scarce but apparently regular winter visitor to beaches and tidal mudflats. The two or three annual sightings (of up to 12 birds in a group) fall between the first week of September and early March.

114. (392) **Spotted Redshank** *Tringa erythropus* (Pallas)

Straggler. There are less than 10 records, all from the coastal belt, from November to late April, 1995-97.

115. (393) **Common Redshank** *T. totanus* (Linn.)

A common visitor, in large numbers, to wetlands in the coastal strip and river basins. The first trickle of migrants arrives by the end of July, the majority following in late Sept. Outward migration begins in April, with a few birds staying on till early June.

116. (395) **Marsh Sandpiper** *T. stagnatilis* (Bechstein)

Uncommon, but regular winter visitor in very small numbers to the coastal belt, where it seems to favour salt pans. Present in twos and threes from late August to early April.

117. (396) **Greenshank** *T. nebularia* (Gunner)

Common visitor in considerable numbers to various water bodies, from the coastal strip to the base of the Ghats. Arrival and departure times are ill-defined, since some non-breeding birds tend to stay on in the monsoon.

118. (397) **Green Sandpiper** *T. ochropus* Linn.

Common winter visitor in small numbers. Found in all three zones, but mainly in the coastal belt. Arrives about the beginning of September and departs by mid-April. Rarely stays on till the monsoon.

119. (398) **Wood Sandpiper** *T. glareola* Linn.

A common winter visitor, in large numbers, to wetlands from just behind the seashore to the base of the Sahyadris. The first birds usually arrive in mid-Sept.; outward migration is over by mid-May. Numbers in a single wetland can be up to 3,000 in some years.

120. (400) **Terek Sandpiper** *T. terek* (Latham)

A fairly common winter visitor, in small numbers, to beaches, estuaries and saline marshes throughout the coastal belt. Absent only from early June to late August. Flock size ranges up to 40.

121. (401) **Common Sandpiper** *T. hypoleucos* Linn.

Ubiquitous dry season visitor to freshwater and saline wetlands of the three zones. Avoids the heaviest rains by moving out around mid-May and returning in early August.

122. (402) **Turnstone** *Arenaria interpres* (Linn.)

Uncommon and erratic autumn passage migrant; found on tidal mudflats in estuaries from late August to mid-October. The occurrence of a single specimen in mid-Jan. seems to be exceptional. Flock size does not exceed a dozen.

123. (406) **Pintail Snipe** *Gallinago stenura* (Bonaparte)

A common, regular winter visitor in smallish numbers. Mostly met with at the fringe of saline marshes in the coastal belt. Present from end September to mid-April.

124. (409) **Fantail Snipe** *G. gallinago* (Linn.)

A common, slightly irregular and moderately numerous winter visitor to flooded paddy

fields in all three zones and to saline marshes, from early October to late April. Up to 300 birds assemble at times in irrigated paddies that are under the plough for the winter crop.

125. (413) **Eastern Knot** *Calidris tenuirostris* (Horsfield)

Rare winter visitor or passage migrant. I have 6 sightings of up to 14 birds, on beaches and in estuaries, from October to November and March.

126. (414) **Sanderling** *C. alba* (Pallas)

An uncommon but regular winter visitor, in moderate numbers, to sandy beaches and estuarine mudflats. Arrives by mid-August and departs by March-end. Flock size usually up to 30, rarely exceeding 100 individuals.

127. (416) **Little Stint** *C. minuta* (Leisler)

Common, moderately numerous winter visitor to wetlands throughout the coastal belt, estuarine mudflats and, rarely, beaches. Begins to arrive in the first week of September and the last birds depart in early May. Flocks rarely more than a hundred birds.

128. (417) **Temminck's Stint** *C. temminckii* (Leisler)

A fairly common winter visitor in moderate numbers (up to a hundred birds in a single flock) to freshly ploughed, soggy paddy fields and less frequently, to saline wetlands of the coastal region. This little wader is one of the last to arrive in its winter quarters (first week of November; departure is over by late April).

129. (420) **Dunlin** *C. alpina* (Linn.)

An uncommon, slightly irregular winter visitor in small numbers. Frequents beaches, estuarine mudflats from early September to first week of March. Assemblies of up to 30 may be seen.

130. (422) **Curlew Sandpiper** *C. testacea* (Pallas)

Scarce visitor, in ones and twos, to saline marshes and saltpans. There are 8 sightings from end-July to the first week of May.

131. (424) **Broad-billed Sandpiper** *Limicola falcinellus* (Pontoppidan)

Rare passage migrant. Up to 19 birds were recorded during September on Divar (Tiswadi)

island, in the inland estuary of the Mandovi.

132. (426) **Ruff** *Philomachus pugnax* (Linn.)

Scarce winter visitor to soggy rice paddies and, rarely, saline wetlands in the coastal region. Recorded from mid-September to early February in numbers ranging up to 35 birds.

133. (448) **Parasitic Skua** *Stercorarius parasiticus* (Linn.)

Straggler(?) I have 5 records of ones and twos off the coast of Anjuna (Bardez), in September. I am sure they are much more frequent visitors to Goa's coast than these few records suggest. Madsen (1988) had observed them frequently off the coast at Gokarn (North Kanara), ca. 140 km south of Anjuna, between September 1987 and January 1988. When Madsen and I visited the Vengurla Rocks off Malwan (Sindhudurg dist., Maharashtra), only 45 km north of Anjuna, in March 1989, we saw several parasitic skuas every day.

134. (450) **Herring Gull** *Larus argentatus* (Pontoppidan)

A common, moderately numerous winter visitor to the entire coastline. For years I hesitated to ascribe any of the baffling large white-headed gulls, even when they were in well-defined adult plumage, to this or the following species. However, a number of visiting British bird-watchers, who were familiar with both species, identified the majority as *L. argentatus heuglini*. The largest concentrations, of well over 500 birds, occur on Morjim (Pernem) beach. They arrive in early October, and depart towards end April.

135. (452) **Lesser Black-backed Gull** *L. fuscus* Linn.

Uncommon winter visitor in small numbers, to beaches and estuaries, from early September to end April.

136. (453) **Great Black-headed Gull** *L. ichthyaetus* Pallas

Common winter visitor in moderate numbers to beaches and estuarine mudflats, from mid-Sept. to end April. Congregations of up to

150 birds are found regularly at Morjim (Pernem) beach and the nearby mouth of the Chapora river.

137. (454) **Brown-headed Gull** *L. brunnicephalus* Jerdon

A common winter visitor in vast numbers. Present along the entire seaboard from mid-Sept. to mid-May. The largest gatherings of over 5000 birds occur on Velsao (Marmagoa) beach.

138. (455) **Black-headed Gull** *L. ridibundus* Linn.

A common winter visitor to the sea-coast and estuaries, in large, but erratically fluctuating numbers. Most of the birds arrive in mid-October and leave towards the end of May. A few non-breeding birds occasionally loiter around through the monsoon. Single-species flocks of close to 10,000 birds (February and December 1983, at Morjim/Pernem beach) were encountered, though this gull is generally much less numerous than *L. brunnicephalus*.

139. (456) **Slender-billed Gull** *L. genei* Breme

Uncommon and irregular winter visitor to beaches and estuaries. This gull is often overlooked, being usually swamped by the vast numbers of other wintering gulls. However, the frequency of sightings has steadily increased over the last 8 years. Records of up to 20 birds date from late August to end February.

140. (458) **Whiskered Tern** *Chlidonias hybrida* (Pallas)

Common but capricious dry season visitor in moderate numbers. Mostly found at freshwater and saline marshes and tanks throughout the coast. The highest numbers (up to 40 birds in one wetland) are encountered during inward migration, in September-October. Decreasing numbers make less frequent visits till mid-May. They may suddenly appear in June or even in July, if the rains slacken.

141. (460) **Gull-billed Tern** *Gelochelidon nilotica* (Gmelin)

Common, moderately numerous and widespread dry season visitor to the sea-coast, coastal region and occasionally to freshwater

tanks in the midland zone. Found from mid-September to mid-May, up to 85 in a single locality. Oversummering by a few birds is quite common.

142. (462) **Caspian Tern** *Hydroprogne caspia* (Pallas)

An uncommon but regular passage migrant in small numbers. Spring migration lasts from early March to mid-April, autumn passage from mid-Sept. to mid-Dec. At Morjim beach (Pernem), their favourite resting place along Goa's coast, up to 20 birds may assemble in March; autumn migration is less pronounced.

143. (463) **Indian River Tern** *Sterna aurantia* J.E. Gray

Straggler. I have four records of up to three birds from fully saline stretches of the Chapora river and from the freshwater Carambolim lake. These sporadic appearances occurred in Feb., May, September and November in recent years.

144. (464) **Common Tern** *S. hirundo* Linn.

Status uncertain, mainly due to confusion with *S. repressa* when both are in non-breeding plumage and migrating far off-shore. The common tern is, with certainty, a minor participant in the annual spring and post-monsoon mass-migration of the white-cheeked tern. Small numbers are found off and on at estuarine mudflats and beaches during the winter months.

145. (466) **Roseate Tern** *S. dougallii* Montagu

Scarce post-monsoon passage migrant in small numbers. In August and September, singles and small groups of up to 5 birds were observed travelling southward with the steady stream of migrating *S. repressa* or resting on tidal mudflats at the mouth of the Chapora river. An isolated record of a single bird from mid-April could have been of a bird on return migration.

146. (467) **White-cheeked Tern** *S. repressa* Hartert

Passage migrant in very large numbers. Its southward movement is concurrent with and parallel, though closer inshore, to the autumnal

mass migration of *S. anaethetus*. A roughly estimated 15,000 individuals pass between end August and mid-October along Goa's coast, with only a few birds putting in short stop-overs on tidal mudflats in estuaries. The less dramatic return movement from March to June occasionally brings large flocks of up to 500 birds to the Chapora estuary. Roving flocks of up to 300, groups and singles, may be encountered during the SW monsoon.

147. (470) **Black-bellied Tern *S. acuticauda* J.E. Gray**

Stray. I saw three birds in full breeding plumage at the freshwater reservoir on top of a barren lateritic plateau near Sancoale (Marmagoa), in September 1988. Four days later, S.T. Madsen and I saw a group of at least 27 birds at the river mouth at Tadri, near Gokarn (North Kanara, Karnataka), ca.105 km to the South.

148. (471) **Brown-winged Tern *S. anaethetus* Scopoli**

A regular off-shore passage migrant in very large but highly fluctuating numbers. Over 28,000 birds were counted during a quantitative survey in 1996. The first of these pelagic terns turn up in the waters off Goa during end August. By mid-September, a massive southward migration sets in, with birds passing several km offshore at a peak rate of over 2,000 per hour. This large-scale movement slows down towards late September and peters out by the first week of October. These terns are known to breed during the SW monsoon on the Vengurla Rocks off Malwan, but not in numbers sufficient to account for the extent of the migration observed off Goa.

149. (474) **Sooty Tern *S. fuscata* Linn.**

Uncommon off-shore passage migrant in smallish numbers. These terns either participate or are simply swept along, in ones and twos, in the annual mass migration of *S. anaethetus*. Immature birds are predominant.

150. (475) **Little Tern *S. albifrons* Pallas**

Annual visitor, in moderate and fluctuating numbers, to beaches, estuaries and, rarely, marshes

in the river basins. This tern is more numerous during the first half of the year (with flocks of up to 150 birds) and totally absent only in August.

151. (478) **Large Crested Tern *S. bergii* Lichtenstein**

A common year-round visitor, in considerable numbers, to the entire coastline. Their favourite resting place between foraging trips is at the mouth of the Chapora river, where up to 800 birds may assemble during the dry season. Numbers dwindle to an average of 15 during monsoon. There are indications of a northward spring and southward autumn movement along the coast.

152. (479) **Indian Lesser Crested Tern *S. bengalensis* Lesson**

A common, considerably numerous visitor throughout the year. Found all along the coast, with the main gathering point at the mouth of the Chapora (up to 850 birds in the dry season). Less numerous in the monsoon.

153. (480) **Sandwich Tern *S. sandvicensis* Latham**

Common, considerably numerous year-round visitor to the entire coastline. The most frequented resting place is at the mouth of the Chapora, where loose flocks of at least 500 birds are seen during April. Their numbers drop sharply during the SW monsoon, and are steadily declining over the years. For a preliminary discussion of the status of this species see Lainer (1988).

154. (484) **Indian Skimmer *Rynchops albicollis* Swainson**

Stray. In September 1996, G. Frost and I sighted one adult bird among various terns on a tidal mudflat in the Chapora estuary.

155. (496) **Pompadour Green Pigeon *Treron pompadora* (Gmelin)**

A common resident in considerable numbers, from coastal headlands to the lower slopes of the Western Ghats.

156. (503) **Yellow-legged Green Pigeon *T. phoenicoptera* (Latham)**

Noted by Rane (1982) at the Bondla WS, some time between April and June 1982.

157. (501) **Orange-breasted Green Pigeon** *T. bicincta* (Jerdon)

One was observed in the Cotigao WS, in mid-January 1998.

158. (506) **Green Imperial Pigeon** *Ducula aenea* (Linn.)

Scarce resident of dense wet evergreen forests of the Western Ghats; rarely below 300 m, except in the Cotigao WS.

159. (510) **Imperial Pigeon** *D. badia* (Raffles)

A rather uncommon and moderately numerous resident of the middle and upper slopes of the Sahyadris, where flocks of over 15 birds may be seen. Strays occasionally to some of the remnant patches of evergreen forest in the plateau region.

160. (516) **Blue Rock Pigeon** *Columba livia* (Gmelin)

Non-feral birds are commonly found roosting during the monsoon in an overhanging cliff on the coast of Tirakol (Pernem), on rocky offshore islands, the steep cliffs on the headland of Cabo de Rama (Canacona) and the 60 m high 'ersatz-cliff' of the Anjunem (Sattari) dam, at the base of the Ghats.

161. (521) **Nilgiri Wood Pigeon** *C. elphinstonii* (Sykes)

A rather scarce, erratic visitor, possibly resident. Davidson (1898), writing about N. Kanara, found 'this pigeon is rare ... Mr. Aitken however informs me it is more common further north about Digi on the Portuguese frontier'. I have sighted it no more than 10 times in a pocket of remnant semi-evergreen forest on the scarp of

a coastal plateau, between October and December, and twice in dense wet evergreen forest on the crest of the Western Ghats, in May.

162. (530) **Rufous Turtle Dove** *Streptopelia orientalis* (Latham)

Straggler(?) Grubh and Ali (1975) noted it at the BMWS and at Mayem (Bicholim), in November-December 1972. I have seen it thrice on the crest of the Western Ghats and once on Chorao (Tiswadi) Is. in the Mandovi.

163. (534) **Indian Ring Dove** *S. decaocto* (Frivaldsky)

Rane (1982) noted this dove between April and June at the Bondla WS. I recorded four instances of flocks of up to 40 birds appearing on fallow rice-paddies of coastal villages, staying from one week to a month, between Nov.- Feb.

164. (537) **Spotted Dove** *S. chinensis* (Scopoli)

Ubiquitous and very common breeding resident, in very large numbers, of the coastal and midland regions, and the base of the Ghats up to ca. 150 m.

165. (541) **Little Brown Dove** *S. senegalensis* (Linn.)

Noted by Grubh and Ali (1975) in or around the Cotigao WS, in Nov. -Dec. 1972.

166. (542) **Emerald Dove** *Chalcophaps indica* (Linn.)

Small numbers of this rather uncommon resident are found in the Sahyadris foothills to ca. 200 m., occasionally in pockets of remnant semi-evergreen forest on plateau-scarps, even in close proximity to the sea.

(to be continued)

